Things You will be Interested to Read About

How Women May Ride the "CHARLEY HORSE" Machine to Melt FAT

THINK of some society women, opulent in purse and person alike, and supplied with a choice of automobiles, being compelled to seek the aid of a "Charley horse" machine for the reduction of their increasing or too abundant adipose tissue! "Charley horse" would have an odd sound in a fashionable drawing room, but to the man who daily reads his athletic and baseball news it is at once suggestive of the training camp and active field. The term is used to denote a condition arising from bruised muscles among athletes, and one of these strenuous young men in ridding himself of his affliction by the new method usually refers to the operation as "rolling away my Charley horse."

A recent European observer states that more than half of the women in the big cities of America are either inclined to stoutness, are frankly overweight or distressingly embonpoint. That is to say, FAT, as expressed in ampitudinous silhouette, billowy curves and cascading chins; for, declares this writer, overeating and the national passion for candies and soda fountain sweets are factors in determining what is likely to become the national type of the "pampered woman." And to these ladies who are trying to stay the onslaught of fat by special treatment the "Charley horse" machine must come like a rotary blessing. "It can roll off the fat just as easily as you would peel off the layers of an onion," remarks a veteran trainer.

It does away with the old-fashioned indoor training for the fleshy in rolling over the floor. Besides it is tidier. It is a machine that will do one's exercising for her without exertion on her part. It has been tried out in a Chicago hospital. Its primary purpose is to reduce weight without requiring exercise or dieting.

The patient stands on the platform, which is raised or lowered so that the rollers will inclose her about the hips, stomach or shoulders, as desired. An ingenious crankshaft arrangement makes it possible for the rollers to be adjusted closely around the circumference of the body.

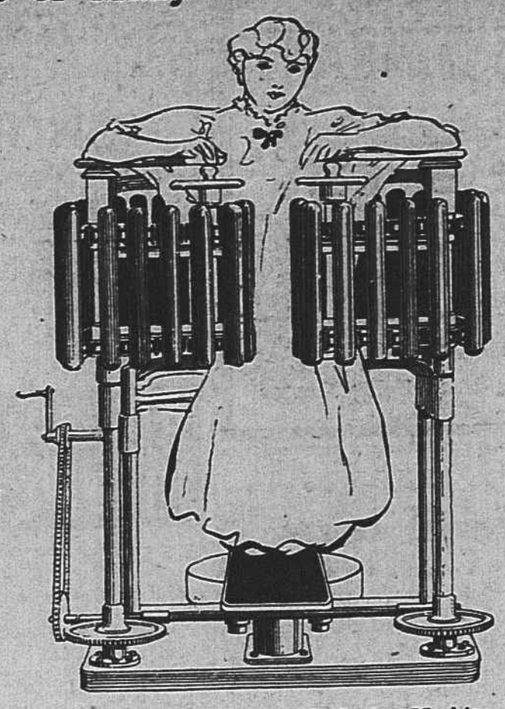
"Exercising without exertion," says Dr. Carleton Simon, "is a lazy man's pastime, and should be ideal for indolent, overfed women. It is the direct exertion that makes exercise effective—the conscious play of muscle and fibre and the mental process back of it. For you must remember that the mind has as much to do with the attaining any particular physical condition as the mere mechanical action.

"You may roll away a 'Charley horse,' which is merely a negative condition, but you cannot roll an athlete or a boxer into the condition that he would attain by hard road work, where he is furnishing the motor power for his own machine and knowing that he was being conditioned by his own personal effort and not by a machine under which he was passive.

"Fat, as a matter of fact, is a sort of 'Charley horse' to pink-of-condition feminine beauty; and this fact should reconcile otherwise punctilious ladies, who stand on polite ceremony, to the use of the 'Charley horse' machine which comes from the sphere of the athlete and the boxer."

The athletic department of Chicago University was the first to try it out. Coach Stagg is quoted as saying his men have had no permanent "Charley horses" since the machine was installed.

One of Many New MECHANICAL Means of Reducing Flesh and How It Is Operated



Showing the Operation of a Fat-Reducing Machine. Two Sets of Vertical Cylinders Turn so as Alternately to Jostle the Body, Which Is Held in Place by Bands at the Back. This Type of Machine Shows Operating Handle, but They Are Commonly Run by Motors.

Why the Right Time to DRINK WATER Is When You Are THIRSTY

THE proper time to drink water is when one is thirsty, no matter under what conditions the thirst may arise or when. Such, at least, is the present position of the more progressive of the medical fraternity.

The old superstition which forbids water at mealtime passes. It was a superstition which had much show of reason, to be sure. It seemed quite evident that the drinking of water with meals unduly diluted the food and so hindered the mastication and insalivation that are essential to its proper preparation for the stomach.

The doctors seemed correct in stating that water, when introuced into the stomach with food, diluted the gastric and other digestive juices, so essential to the digestive process, and so very materially interfered with assimilation.

It was confidently stated, too, that a quantity of water in the stomach actually flushed that organ, and that the food was thus carried on into the intestines before the digestive changes that should be brought about had been satisfactorily inaugurated.

On these grounds, to which the layman could not demur, we were condemned to thirst at mealtime by the edict of our physicians, although it is pretty safe to say that the majority of us heeded the voice of appetite—just as the doctors did in practice.

All this was before science had enabled men to actually see the digestive mechanism at work or to apprehend the delicate chemistry of the processes involved.

It now develops that, in so far as the digestive process is concerned, the principal effect of water is to greatly stimulate the flow of that essential fluid, the gastric juice. No other agent in our food does this so quickly or as effectually. More significant still, the gastric juice thus secreted has a higher concentration of acid than that produced previous to the introduction of the water.

That is to say, water is quite essential to the free production of the most important of the reagents which nature uses in transforming food into life.

The water leaves the stomach very quickly, and, contrary to the time-honored theory of these doctors, carries with it no appreciable quantity of the solids there. These are left to the action of the gastric juice.

Once in the intestines, water materially retards the development of the bacteria there. It thus becomes an important agent in lessening the malevolence of the micro-organisms which produce putrefaction.

These are the facts which convince medical men that water best aids in the digestive plan when it is taken with meals. If consumed at other times it causes more or less glandular waste, of course, for it stimulates the secretion of gastric juice, no matter when it is taken.

How DENTISTS Made TEETH BRIDGES Thousands of Years Ago

SHE lays down her teeth at night just as she lays down her silken robes." Being written of an elderly lady, the epigram is neither pleasant nor polite, although in both respects it is superior to another by the same author, which reads: "She affects reality by wearing false teeth made of bones and Indian ivory."

Most people would probably ascribe these sayings to some ill-natured wit of today, were it not that everybody knows that bones and ivory are no longer used in the construction of artificial teeth. But even this knowledge hardly prepares the average person for the statement that the epigrams quoted are almost 2000 years old, having been written, in fact, by the poet Martial in the first century of the Christian era.

Evidently, therefore, dentistry is by no means a modern profession. There are some facts, indeed, which lead one to suspect that it is almost as old as the toothache.

For instance, there is in the archaeological museum of Athens a vase of antiquity so remote that none ventures to locate its place in time. Its principal decoration represents a dentist in the act of extracting a patient's tooth.

As far back as 1300 B. C. the physician, Asklepios, recommended that the teeth should be extracted for certain maladies.

Nine hundred years later, in 400 B. C. to be exact, Hippocrates prescribed "dill, anise seed and myrrh dissolved in pure white wine" for the cure of "black and unhealthy gums." Now, nearly 2400 years later, myrrh is one of the commonest of the dentist's prescriptions.

The same ancient authority recommended chalk for the teeth. He would have it mixed with "the head of a hare" and the "intestines of a mouse," to be sure, but the chalk was the base of the powder, just as it is the base of the tooth powders of the 20th century.

Naturally, the ancient dentist was not as well equipped with instruments as the dentist of today—at least not in Rome. There, according to Celsus, his outfit consisted of tweezers, corresponding to the modern forceps; phizagra, to extract roots; vulsellum, for removing debris of bone and tooth, and the specillum, a sort of probe.

Nevertheless, no matter how meagre their equipment, they accomplished some feats quite comparable with those of the dentistry of today. In the various museums of Rome and Greece there are many specimens of ancient crown and bridge work that betoken a knowledge and mechanical skill that challenge wonder as well as admiration.

Dentistry seems to have been practised on this side of the ocean almost as early as in Europe or Asia. It is quite likely, indeed, that the art of filling teeth was first discovered here. At any rate, pre-Columbian skulls from both Ecuador and Mexico are in evidence having teeth richly inlaid with gold, and in some instances precious stones.

How the SNAKE Eats Objects BIGGER Than Himself

MOST folk are sceptical of snake stories, for the queer but well grounded psychological reason that when dealing with such a subject the mind of the ordinary person is prone to lapse into wild exaggeration. But here we are able to give the picture of an actual exhibit, which will go far toward establishing the authenticity of some of the big claims made by otherwise reputable observers. This snake is 16 yards long—just think of that!

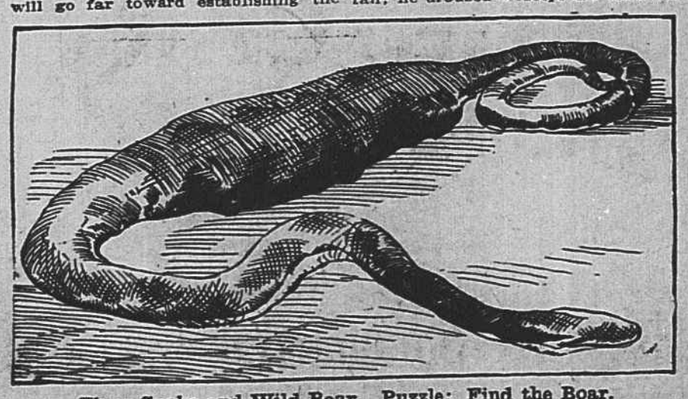
When Aagot Lange, the Amazon explorer, coming for the first time from a series of remarkable adventures in that wild country, had his stories given to the world with the enthusiastic editorial approval of Mark Telfair, he aroused widespread criticism by telling of the killing of a boa-constrictor about 60 feet long.

Like the farmer who beheld a camel for the first time and then declared that "There ain't no sech animile!" there were many travelers, naturalists and others who scornfully held that the youthful explorer was either deliberately romancing or that the proximity of an ordinarily big snake had superheated his judgment.

On the other hand, there were some who upheld the story, notably men who had long and varied experience in South African jungles. Our contribution to the debate is carefully drawn from a photograph, and shows a Java tiger snake after it had swallowed a wild boar weighing more than 92 pounds!

The bulge shows where the boar is safely tucked away, and when the ordinary thickness of the reptile is compared with it one realizes the enormous distension of which snakes of this species are capable.

While this Java glutton does not match the monster of the Amazon, still it is within reaching distance of it, so to speak; it is fully 48 feet in length, just 12 feet short of confirming the Lange story. And what is 12 feet when it comes to the acceptance of a first-rate, ripping good story?



Tiger Snake and Wild Boar. Puzzle: Find the Boar.

World's Biggest Telescopes

IN a recent number of the Observatory, Mr. H. P. Hollis gives a very interesting list of large refractors and reflectors, either under construction or already set up in observatories. The largest working objective is that of the Yerkes Observatory in Wisconsin, U. S. A.

Of the refractors under construction the following may be mentioned: A 32-inch for the Nicolaieff Observatory, Russia; a 26-inch for the Union Observatory, Johannesburg; three 24-inch for the following observatories: Argentine National Observatory, Cordoba, Chili National Observatory, Santiago, and the Detroit Observatory, Michigan, U. S. A., and a 20-inch for the Chabot Observatory, Oakland, Cal.

The Earl of Ross's 72-inch reflector holds the field for the largest reflector (metallic speculum), while Dr. Common's 60-inch (silver on glass), now at the Harvard Observatory, U. S. A., comes second.

Of the reflectors under construction, two giants are in hand, namely, one of 100 inches for the Mt. Wilson Solar Observatory, and one of 72 inches for the Dominion Observatory, Canada.

Others under construction are a 40-inch for the Simeis Observatory, Crimea, and two of 30 inches, one for the Helwan Observatory, Egypt, and the other for Mr. D'Esterre's Observatory, Surrey, Eng. It is interesting to note that the number of instruments in each list is about the same, namely, 38 refractors and 40 reflectors.

California has the world-wide reputation of fathering the most daring engineering projects in the world in the way of electrical generation and transmission.

Curious FACTS About the EEL

THE egg of an eel will not develop in fresh water. It took the naturalist a long time to make this discovery. Centuries passed, indeed, before any of the wise men knew that eels produced eggs.

These fish were well known in the days of Aristotle, and prized as food, but that astute scholar taught that they were without sex and produced spontaneously from the earth's entrails. Pliny agreed with him as to their sex, but affirmed that they rubbed themselves against the rocks, thereby scraping particles of slime from their skins which developed into eels.

It was not until 1877 that a naturalist, an Italian, by the way, identified a female eel. He taught that the young were born alive from their mothers. More than a hundred years afterwards, another man of science succeeded in detecting a male eel, thus overthrowing at last the teaching of Aristotle.

Knowledge of eels advanced so slowly for the simple season that they were studied only in their summer homes, bodies of fresh water. They do not spawn there. An unerring instinct teaches them that their eggs need the stimulation of brackish water to develope them into activity.

Every fall, therefore, the eels of the world, at least such of them as are not sterile or too young, seek the sea. The great migration begins about the middle of August. From every little pond and stream tney issue, following the downward current. There are obstacles innumerable, of course, such as dams and the like, but the eel host surmounts them, often squirming its way over dry ground for long distances, until at length the taste of salt assures of proper conditions for spawning.

The eggs are minute and numberless. Millions of them perish as food for fishes. But millions survive, develop, became eels and join the vast horde that instinct drives back to fresh water in the spring.

In the meanwhile, eels which have not felt the resistless call of the salt water, bury themselves in the muddy bottoms of the streams for a winter of comparative inactivity.

It took science a long while to discover that these peculiar fishes have scales. Even now, the ordinary person is hardly prepared to credit them with such protection. And yet the scales actually exist. Being minute in size and imbedded in the thick skin, they are quite invisible, but they furnish, nevertheless, an armor quite as effective as do the larger scales which protect other fishes.

If injected into man, the blood of an eel causes death almost immediately. This should deter no one from eating the fish, however, for the heat of cooking destroys the toxic properties of its blood and besides, that blood is practically harmless when taken into the stomach.

Most Remarkable of Boundaries

THE demarcation of the Alaska-Canada boundary from the St. Elias range straight north along the 141st meridian to the Arctic ocean has been in progress since 1907, and is reported to have been completed during last summer.

This undertaking was notable for several reasons. No other modern boundary demarcation has extended into such high latitudes, and few boundaries of equal length anywhere in the world are so straight; the line follows the meridian without the slightest deviation, regardless of mountains, swamps and forests.

Wherever the boundary passes through timber and brush a 20-foot clearing has been made. Monuments have been set up along the entire line, at points visible from each other; generally at distances of three or four miles. At important points these monuments are five-foot shafts of aluminum bronze, weighing, 300 pounds, set in 2000 pounds of concrete. The boundary is 600 miles long, and is marked by about 200 monuments.

Making a Concrete Buoy

REINFORCED concrete during the last few years has been invading many fields which hitherto have been considered as belonging exclusively to iron and steel. One of the interesting illustrations of this fact is the construction of a concrete buoy at Kingston, Jamaica.

It is stated that the cost is only about 50 per cent. of the cost of a similar buoy made of steel.

To prevent the mooring chain from injuring the bottom of the buoy the latter is made concave. The manhole cover was grouted into its place after the buoy was afloat. Leakage is handled by means of a pump-hole.

Breeding PIGEONS to Develop Their CLEVERNESS

BREEDERS of "homers" are altering the shape of the skull of this variety of pigeon with a view to improving the mentality of the bird.

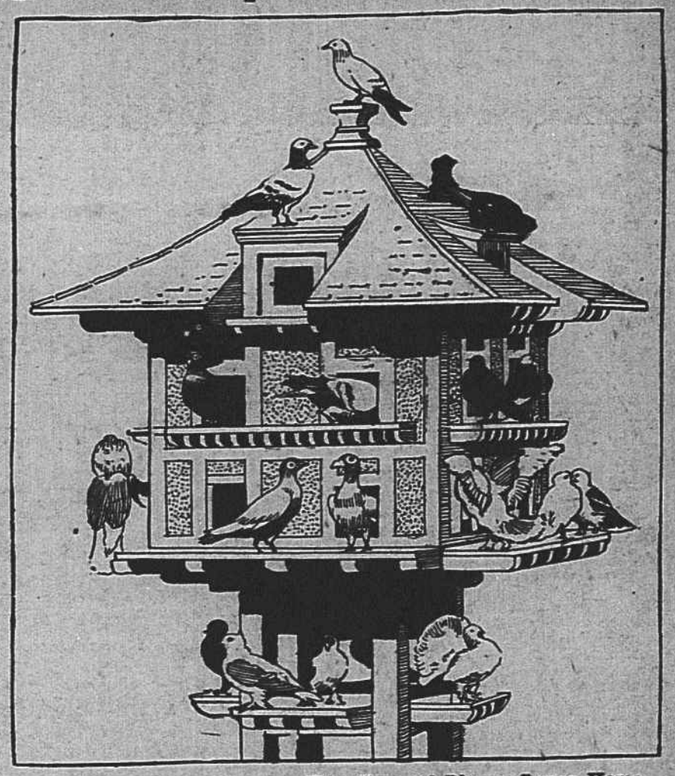
The homing pigeon hitherto has had a short, flat skull, sloping away behind. Now, as a result of selective breeding, it is acquiring an elongated cranium with a rounded dome. The improvement of its intelligence accomplished by this means is declared to be surprising. Its brain is bigger and has more room for thoughts.

The "homer" is the only bird that is bred by man for the improvement of its mind. Other pigeons are propagated for color, plumage, and incidental "points." Not so the homing variety. What is chiefly required of it is intelligence and memory—though, in addition, it must possess strength, endurance and swiftness of flight. It must have a big chest, with strong flight-muscles; also broad tail feathers, and long, broad wings. Yet another essential qualification is keen eyesight.

No other kind of animal has ever been subjected to such severe "breeding out" as the homing pigeon—a process which in its case, carried on through centuries, has eliminated every individual that has failed to exhibit the special qualities, mental and physical, which are demanded. Consequently the bird has undergone a steady and progressive improvement. Only a few years ago a homing flight of 500 miles in a day was thought phenomenal; today flights of 600 or even 800 miles in 24 hours are not very uncommon.

In one recent instance a "homer" accomplished a flight of 1300 miles—some days being required, however, to cover the distance. It should be understood that the pigeon flies only in the daytime, resting at night. But another important point to consider is that the bird, in flying, usually travels a far greater distance than the shortest route between the place of departure and its destination. It does much circling and makes wide detours, scanning the country over which it passes and looking for familiar landmarks to guide it.

This is where memory—as well as eyesight—comes in. The bird does not find its home by "instinct," but by its remembrance of landmarks—rivers, towns, and the general configuration of the terrain.



A Homing Pigeon House. This Type of Pigeon Loves Home. It Is Upon the Strength of This Instinct That Its Usefulness Always Rests.

The common pigeon has the impulse to fly home, but it cannot find its way thither from any great distance because it lacks the requisite intelligence and memory power. In the "homer" this impulse has been greatly strengthened through breeding—so much so, indeed, that it will leave nest and young to get back to the place where it belongs.

A homing pigeon cannot be sent from its home to another place. It will fly home, and in no other direction. At first it is trained for short distances, in the near neighborhood of its home. Then it is liberated at greater and increasing distances—25 miles away, 50 miles away, 100 miles away, and so on. But, for these performances, it is always shipped from home in the same direction. On a new route it would be lost.

The carrier pigeon is misnamed; it is the "homer" that carries messages. The latter has been derived through the interbreeding of several different varieties, chief among which are the carrier, the dragoon, the owl pigeon, and the swift smerle.

The processes of evolution as modified by human control have had no more remarkable illustration than that afforded by the domesticated pigeons, all the varieties of which—fantails, pouteurs, tumblers, and the rest—are descended from one original kind of bird, the "blue rock." But the "homer" is the only pigeon in which the special aim of breeders has been to develop the intellect.

How They BLAST With Liquid OXYGEN

IT has long been known that liquid oxygen mixed with substances like cotton wool forms a powerful explosive, but serious difficulties were encountered in its practical use. A new method has now been discovered for handling this oxygen that makes it practical for commercial use.

Bags are filled with a special form of lampblack, which are soaked in the liquid oxygen for a few minutes just before they are required for use.

If the bag is now lighted with a match it will burn quietly and very slowly, but if detonated it explodes with the force of dynamite, and the cost is much less.

Much less carbon monoxide is given off than by most other explosives, and there is no danger from a misfire as the oxygen will evaporate in a short time.

About 700,000 demijohns are made yearly in the United States, but the largest sizes are imported. It is predicted that the general temperance movement will decrease both outputs.